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AUTHOR Hay, Ellen A.
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ABSTRACT

Because critical thinking has become a popular topic among speech communication educators in recent years, this paper reviews the literature on teaching critical thinking skills and discusses its relevance for speech communication instruction. First, the paper briefly sketches the history of the critical thinking movement and describes the reaction of speech communication educators to the movement. Second, definitions of critical thinking are discussed, and the document notes that the definitions--logical, cognitive and communicative--differ depending on point of view. The third topic covered is how critical thinking is taught. Types of thinking skills programs are listed, including the following: (1) general thinking skills programs that can function within a communication curriculum; (2) programs that concentrate on particular skills (such as argumentation, persuasion, debate, and logic) in particular content areas; (3) programs that teach thinking skills in isolation; and (4) programs designed specifically for speech communication classes. Teaching methods such as questioning techniques and modeling are also mentioned. The paper's fourth focus is on evaluating critical thinking. Several theoretical bases for assessment are presented, and the merits of different standardized measures are also debated. The final part of the paper concerns implications of the critical thinking movement for speech communication instruction, including the importance of cognitive and metacognitive aspects of instruction and the transfer of thinking skills to other contexts. Thirty-one references conclude the document. (SKC)

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THE CRITICAL THINKING MOVEMENT AND ITS IMPLICATION FOR THE TEACHING OF SPEECH COMMUNICATION

by Ellen A. Hay
Lynchburg College
Lynchburg, VA 24501

The popularity of the term "critical thinking" has certainly increased in recent years as reports on elementary, secondary and higher education have criticized the inability of educators and curriculums in preparing today's young people to approach life's problems in a reflective and deliberative manner. This concern has demonstrated itself in numerous books, articles and workshops. Since 1978, for example, approximately 2,000 articles have appeared on the topic (Paul, 1985). The California university and community college systems have instituted critical thinking requirements (Paul, 1984). The Conneticut State Department of Education has established a testing and curriculum planning program for its schools (Steinberg and Baron, 1984). Recently, the Virginia Thinking Skills Task Force developed an inventory to help school district's assess the extent that thinking skills are accomodated in the curriculum (Virginia Department of Education, 1987). Just as "relevancy" was the buzz word of the educational community in the 1960's and "competency" in the 1970's, "critical thinking" is today's popular expression.

Speech communication educators have began to develop their own responses to this movement. O'Keefe's AFFECTING CRITICAL THINKING THROUGH SPEECH (1986) presented a variety of speech activities which promote critical thinking. Articles in COMMUNICATION EDUCATION and SPECTRA have also noted the integration of critical thinking skills into the speech communication classroom. The application of the principles and concepts of the critical thinking movement seems tailored made to the teaching of speech communication whether it be at the elementary, secondary or collegiate level. Through a review of the literature, this paper will investigate the relationship between the critical thinking movement and speech communication education by answering four questions:

What is critical thinking?
How is critical thinking taught?
How is critical thinking evaluated?
What are the implications of this movement for speech communication educators?

What Is Critical Thinking?

In first defining "critical thinking," it is important to recognize that not just one definition or interpretation of what is meant. In a 1985 synthesis of the literature on critical thinking, Norris concluded that,

> Thinking critically can be defined as rationally deciding what to do or believe...Being a critical thinker of course implies assessing the views of others and one's own views according to acceptable standards of appraisal. One must also be productive in the sense of conceiving of alternative courses of action and candidates for belief, before critically appraising which alternative to choose. People must be able to produce reliable observations, make sound inferences and offer reasonable hypotheses. Finally, one must have the disposition to think pro-

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ductively and critically about issues, or else no amount of skill in doing so will be helpful. (p.40)

While Norris's definition provides a starting point for understanding critical thinking, it should be realized that his emphasis on reasoning abilities is only one way of looking at critical thinking. There are other more divergent points of view. At a 1986 AAHE conference on critical thinking, Mohrman articulated nine different approaches that are evident in the critical thinking movement. In addition to emphasizing the role of teaching students to reason effectively either through the use of formal or informal logic, some proponents of critical thinking advocate that a set of common skills be taught across the curriculum. Others suggest that each discipline has a unique "way of knowing" which must be identified and taught. Some argue that ethical considerations must be integrated with reasoning skills to teach students valuing. The developmental psychologist using the work of theorists such as Piaget and Kohlberg suggest that thinking skills are developed by facilitating growth through various levels or stages. The cognitive psychologists advocate that certain processes or factors which influence human thinking must be understood. Other critical thinking proponents focus upon problem solving techniques, and still others maintain that theories related to design (ie. engineering or architecture) should be studied. Mohrman's "road map"clearly demonstrated the broad parameters of the critical thinking movement. Many of these differences were also discussed by Nickerson (1984). He noted, "The wide variety of approaches currently being tried is testimony to the fact that people hold different opinions with regard how to proceed" (p.29).

The role of communication in critical thinking is linked in a number of definitions. In ANALYSIS AND COMMUNICATION AT ALVERNO: AN APPROACH TO CRITICAL THINKING, the members of that college faculty noted that, "...fostering the ability to analyze and communicate is a viable and vital strategy for developing the critical thinker. Certainly these abilities to separate and connect have always been at the heart of critical thinking" (Loacher et al, 1984, p. iv). O'Keefe (1986) further elaborated upon this relationship when she commented, "Speakers usually are not aware at the beginning of their statements what the exact conclusion will be. Speaking aloud releases peripheral information that the mind has absorbed and allows the speaker to express him or herself more fully" (p.9) Sadler and Whimbey (1985) explained that, "Communication is at the heart of the process by which intellegence (and learning deveops)... We are now clearly aware that an inner dialogue within the learner must accompany the external dialogue between teacher and student"(p.201).

From this cursory examination of the definitions of critical thinking, a number of conclusions can be drawn. First, a number of different perceptions of critical thinking exist. Second, the aim of all of these views is to help young people function more effectively in dealing with problems, making decisions and forming impressions. And third, communication does have a role in accomplishing this aim.

How is critical thinking taught?

When considering how best to assist students in becoming better critical thinkers, educators have a variety of approaches from which to choose. These approaches range from established programs, to direct instruction of particular abilities to indirect emphasis of critical thinking skills.

A mirade of thinking skills programs have been advanced for use with elementary, secondary and college students. A brief description of three such

programs illustrates the dimensions of such programs and suggests approaches which can accomodate such programs in the communication curriculum. DeBono, for example, advocated use of his CoRT program. First developed in 1973, it was extensively used in over 5,000 schools around the world. DeBono conceptualizes thinking as perception (lateral, creative thinking) and analysis (vertical, logical thinking), and places special emphasis on the development of perceptual skills. The program designed for nine to twelve year-olds is adaptable to other ages. It includes a lesson per week for two to three years. The six units of CoRT introduce approximately 50 discrete "operations" or thinking skills. Each lesson presents the "operation", gives examples and provides practice. Evaluation of CoRT suggested that it did teach useful skills which students can apply in a variety of contexts especially when similiar to the practice, but some researchers voiced reservations about the general effectiveness of the program. (Chance, 1986; Nickerson, Perkins & Smith, 1985; DeBono, 1983)

Another program designed by the faculty at the University of Nebraska in the early 1970's integrated Piaget's developmental theory with the Karplus learning cycle. The assumption underlying the program is that college students need assistance in moving from concrete operational thought to formal operational thought. To make this transition, concepts must be presented in a manner which first allows students to explore material, then invent concepts and finally apply concepts. Faculty volunteered from across the curriculum to teach students (also volunteers) in this manner. Courses in anthropology, economics, English, history, mathematics, physics, sociology and computer science "encouraged the development of the same reasoning skills" through a "coordination of activities" (Nickerson, Perkins & Smith, 1985, p. 231). Program evaluation indicated that students did develop formal operational abilities as a result of participating in this curriculum. (Nickerson, Perkins & Smith, 1985; Meyers, 1986)

A third program, Philosophy for Children by Lipman was based upon the contention that thinking is directly related to philosophy. His program, designed for elementary and secondary students, focused on abilities such as identifying generalizations and assumptions, analyzing value statements, formulating hypotheses, and indicating fallacies. Students in the program read a series of books written to focus on such abilities and then through extensive class discussion further explored the concepts presented. Lipman contended that students must be presented with interesting, thought provoking material and then must be encouraged to fully investigate the ideas in the material. In addition to the readings, this program also provided extensive training and support for teachers. Evaluation of the program demonstrated gains on standardized measures as a result of participation. Students also evidenced greater enthusiasm and confidence. (Nickerson, Perkins & Smith, 1985; Meyers, 1986; Chance, 1986)

These three program clearly indicate that the teaching of critical thinking can originate from a number of theoritical bases and take a number of forms. Other programs which further demonstrate such diversity are Covington's Productive Thinking, Feuerstein's Instrumental Enrichment, Whimbey's Problem Solving and Comprehension, Dansereau's Techniques of Learning, DOORS at Illinois Central College, COMPAS, Project SOAR at Xavier University of Louisiana, and DORIS at California State University at Fullerton. Such programs may have adaptations suitable to the speech communcation classroom.

Another approach to teaching critical thinking involves identifying the particular skill/ability/concept and then formulating a plan for focusing upon that skill either as a "thinking" lesson or in a particular content area. Beyer (1985) suggested that instructors could chose from two strategies. The

inductive approach "allows students to articulate for themselves key attributes of the skill being introduced" while the directive approach "gives students the components of the skills right from the start" (p. 298). In using the more directive approach Jackson (1986) recommended that the teacher introduce, explain, demonstrate, apply and review the skill. Marzano and Arredondo (1986) advocated a thinking skills model which divided abilities into learning to learn skills, content thinking skills and basic reasoning skills.

Strategies such as these have been repeatedly used in the speech communication classroom. In focusing upon argumentaton, persuasion and debate, many students undoubtedly receive direct instruction in formal and informal logic. Attention is given to identifying arguments, fallacies and evidence, and assessing truth and validity, and designing sound, well-reasoned messages. Similarly, in the study of discussion methods, students receive instruction in formal problem solving procedures such as Dewey's Reflective Thinking Model or the PERT system. Such procedures encourage the thorough evaluation of topics and issues in task group discussions. Students in public speaking learn to make observations and draw inferences about their audiences and to then accomodate the necessary modifications in their presentations. They apply criteria to choices of topic, evidence, organization and delivery.

One of the major debates surrounding the direct teaching of critical thinking skills is whether such skills should be integrated into the content or taught in isolation. Some argue that thinking skills should be isolated as thinking lessons. DeBono, for example, stated,

> We should have a specfic place in the curriculum that is set aside for the teaching of thinking skills. This formal recognition is essential so that pupils, teachers and parents recognize that thinking skills are being taught directly. Because we cannot succeed in teaching generalizable thinking skills through the use of specific content materials, some theorists believe that such skills cannot exist. But there is another way of looking at this situation: the view that generalizable thinking skills exist but cannot be taught using specific content... wherever there has been attempt to teach thinking skills and content together, the training in thinking seems to be weaker than when those skills are taught in isolation. (p.706)

Others would argue that such critical thinking skills should be taught within a particular content area. For example, Chance (1986) noted that, "Both logical reasoning and problem solving take different forms in the context of different academic disciplines. Critical thinking must necessarily vary among disciplines because the core ingredient of critical thinking is the foundational, or epistemic knowledge of a given discipline" (p. 6).

One example of how thinking skills are integrated with speech communicaton instruction was apparent in the Fritz and Weaver (1986) article, "Teaching Thinking Skills in the Basic Public Speaking Course: A Liberal Arts Perspective." Fritz and Weaver utilized the "divisions of classical rhetoric" to "provide direction for teaching critical thinking skills" (p. 174). They describe a number of class assignments and activities related to skills of invention, framing, scenario creaton, organization, prescription, composition, memory, delivery and imaging.

Instructors can also approach the teaching of thinking in a more indirect manner. In such instances, a specific ability is not taught in isolation but rather an overall attitude or approach to thinking is encouraged. Sadler and Whimbey (1985) contended that,

> Trying to break thinking skills into discrete units may be helpful for diagnostic purposes, but it does not seem to be the right way to move in the teaching of such skills. We believe that teacing people to think is like teaching to people to swing a golf club. It is most important to get the feel of the whole action. If you start by working on just one small piece of the swing, you'll surely make a mess of it. (p. 200)

The Sadler and Whimbey holistic approach stressed active student involvement in learning, included ample communication opportunities, encouraged intuitive understanding, accomodated development differences, attended to the role of motivation in learning and promoted a positive social climate. According to Sadler and Whimbey, instruction that included these dimensions would encourage critical thinking.

Questioning both by instructors and students is also frequently advocated in more indirect approaches to critical thinking. Arons (1985) advocated that,

> What one must learn to do is ask simple, sequential questions, leading students in a deliberate Socratic fashion. As the students respond to such careful questioning, one can begin to discern the errors, misconceptions and missteps in logic that are prevalent. Students are much more significantly helped when they are led to confront contradictions and inconsistencies in what they say and spontaneously alter their statements as a result of such confrontation. (p. 154)

In a 1984 COMMUNICATION EDUCATION article, Katula and Martin advocated use of D'Angelo's theory conceptual theory of rhetoric. They contended, "that our task as teachers of speech communication is not necessarily to teach students to think, but to make them aware of how they do think already - of how they naturally use patterns to order their thoughts" (p. 163). Katula and Martin suggested a series of questions (time and static probes) which develop an awareness of thinking.

Thinking can also be promoted through student questions. Stano (1986) developed and tested a model based upon Bloom's taxonomy. Students are instructed in asking questions according to the different levels of the taxonomy. Such questions become the basis for classroom discussions which move from low order thinking abilities up to more difficult levels. Similarly, Hunkins (1985) suggested using a questioning cycle which included student generated questions which would assist in planning, implementing and assessing instruction.

A number of other classroom practices also can be used to promote critical thinking. Meyers (1986) described a number of these in TEACHING STUDENTS TO THINK CRITICALLY. He suggested classes which helped students move from concrete to abstract thought and fostered interest through a balance of content and process, and of lecture and interaction in a supportive environment. Arons (1985) warned against mismatched teaching.

> We force a large fraction of students into blind memorization by imposing on them, particularly at high school and university levels, materials requiring abstract reasoning capacities they have not yet attained. And we proceed through these materials at a pace that precludes effective learning and understanding,

even if the necessary reasoning capacities have been formed. (p. 153)

A final more indirect method of teaching critical thinking is through modeling such abilities. Students need to see adults wrestling with real world problems. As Steinberg (1985) explained, adult problems are different from those studied in school. Often the problem is not well structured; essential information is not available; no one right answer exists or can be arrived at through the application of formal principles. Paul (1984) stated that,

> The most vexing and significant real life problems are logically messy. They span multiple categories and disciplines....What is called for is liberating, emancipatory reason, the ability to reason across, between and beyond the neatly marshalled data of any given technical domain. (p.11)

By discussing their perceptions and thought processes, speech communication educators can illustrate these dimensions of critical thinking, yet show that it is the only acceptable adult mode of operation.

In summary, the development of critical thinking abilities can be facilitated in a number of ways. An established program can be adapted to meet the needs of a particular institution or classroom. Specific abilities or skills can be identified and receive attention through direct or integrated instruction. Finally, indirect methods can be used to promote thinking.

How can critical thinking be evaluated?

Once critical thinking has received attention in the classroom, it is next necessary to assess the effectiveness of such instruction. Again a number of choices are available ranging from norm referenced, standardized approaches to more nonquantitative, impressionistic techniques.

When deciding upon a particular assessment procedure, it is first necessary to consider the outcomes which are to be evaluated. Just as objectives or goals are imperative to the implementation of a program, they are as important in formulating assessment. Young (1980) recommended that Bloom's taxonomy serve as a basis for designing assessment so that higher order levels of thinking (ie. analysis, synthesis, evaluation) can serve as the focus for evaluation. According to Ennis (1985), however,

> Bloom's taxonomy does not provide the guidance that we need. First of all, the concepts are too vague as they stand. Second, as we might expect from the first difficulty, the taxonomy is not accompanied by criteria for judging the outcome of the activity. To teach higher order thinking skills, we need criteria for making such judgments. (p. 45-47)

Paul (1985) echoed Ennis's concerns when he noted that the taxonomy's "attempt to remain netural with respect to all educational values and philosophies issues is a one-sided hierarchical analysis of cognitive processes that limits our insight into the nature of critical thinking" (p. 39).

The Feezel (1985) confluent mental dimension taxonomy was specifically applied to speech instruction may serve as a more appropriate theory base for the articulation of critical thinking outcomes in the speech communication context. It effectively integrated a number of theories such as those by Bloom, Kratwohl and Simpson. Feezel articulated a hierarchy that started with

recording then moved to reaction to interpretation to analysis to application/evaluation and finally to synthesis. Using Feezel's model, the beginning student in oral interpretation, for example, would show an understanding of the rules of the event, offer a personal opinion on a particular work of literature and suggest a literal and perhaps figuarative meaning for the work. The advanced critical thinker apply sophisiticated criteria to the evaluation of a particular work and could draw together many different works to form a interpretative program.

Several other theoritical bases have also been offered as a foundation for assessing critical thinking. Sternberg and Baron (1985), for example, synthesized Sternberg's triarchy of intelligence with Ennis's conception of critical thinking dispositions and abilities to serve as the theoritcal base for the thinking skills mastery test developed in Connecticut. The New Jersey Task Force on thinking incorporated the guidelines from the College Board's Project EQuality along with its own list of competencies to use as a framework for developing the New Jersey Test of Reasoning Skills give to first year students at public colleges (Morante and Ulesky, 1984). It is evident from just this brief examination of various theory bases, that when selecting an assessment procedure, it is imperative to evaluate the underlying framework for the procedure.

A number of standardized measures are available to assess critical thinking. Nickerson, Perkins and Smith (1985) identified approximately twenty measures which have been used to evaluate established programs. The Watson-Glaser Critical Thinking Test, the Whimbey Analytical Skills Test and the Cornell Critical Thinking Test emerged as popular choices in standardized assessment. Whimbey (1985) contended, however, "A school can determine whether it is using one of these programs [reasoning skills] effectively by plotting reading comprehension gains over one year of training. The reasoning skills students develop will be manifested as accelerated improvement in reading ability; no special test is needed" (p. 39). Norris (1985) also cautioned that, "Most critical thinking tests do not provide information about what the examinee is thinking. That is, they provide only the conclusions to thinking processes, not the processes themselves" (p. 42). To overcome this weakness, Norris recommended standardized essay tests such as the Ennis-Weir Critical Thinking Essay Test.

Another means of overcoming the weaknesses of standardized measures is to design an assessment specific to the instructional situation. Marzano and Arredondo (1986) noted that "many of the competencies cannot be assessed via objective, mutliple choice formats, and some competencies have no 'correct answer' to use as criterion" (p.25). Simulations are frequently recommended as assessment tools (Meyers, 1986; Norris, 1985). These assessment forms require students to become involved in a problem which requires the use of critical thinking abilities rather than just reflecting upon what these abilities are or in arriving at a solution. Meyers (1986) also suggested clear feedback to the student on thinking performance to further insure the development of critical thinking abilities.

In considering the evaluation of critical thinking it is first important to identify the outcomes receiving attention. From this starting point, it is then possible to select a standardized measure or to develop a more specific assessment which will evaluate the intended abilities.

What are the implications of the critical thinking movement for speech communication instruction?

From this review of definitions, teaching strategies and assessment options, it is apparent that critical thinking does have a definite place in the communication curriculum. It is, therefore, necessary to consider the future implications of this movement. In addition to being knowledgable about and promoting critical thinking, what othher responses should be made?

First, speech communication educators must attend to both the cognitive and metacognitive aspects of their instruction. In the speech communication context, cognitive skills are those thinking abilities that are actually used when a student is debating, speaking, interpreting, discussing and relating. They are the thinking skills which get the task completed. As Nickerson (1984) emphasized,

> Metacognition is cognition about cognition, knowledge about knowledge, thinking about thinking. According to certain studies, one major difference between expert and novice problem solvers is that the performance of experts has more meta-cognitive aspects than that of novices. Experts plan more effectively, monitor performance more carefully, and have a greater sense of their own capabilities and limitations as they relate to the problem domain. (p.34)

In learning communication abilities, students need to consider the process along with the final conclusion or product so that they develop a conscious framework of thinking about how to speak or how to relate or how to discuss. Not only do they develop the abilities, but they also develop an understanding of the thinking processes surrounding the use of those abilities. In planning instruction, teachers must attend to the cognitive and metacognitive dimensions of abilities.

Second, speech communication educators must consider whether it is possible for critical thinking abilities addressed in communication courses can transfer to other contexts and then facilitate this transfer for students. Perkins (1986) explained, "It would be convenient if people automatically carried over to other relevant context whatever they learned in a particular context. Unfortunately, a number of findings in recent years have warned that transfer often does not occur spontaneously" (p.8). Perkins also suggested a number of approaches to overcome this problem. He noted that, "we can deliberately include a great variety of examples in instruction, examples that range well beyond the usual, reaching outside the clasroom or into different subject areas" (p.9).

In many ways the speech communication classroom is ideally suited for such transfer. Speech, debate and discussion topics, for example, are drawn from a wide range of disciplines and current events. The next step by instructors then is to indicate this relationship to students. Future steps include the need to document that critical thinking skills learned in the speech communication classroom are transferred to the consideration of topics in other disciplines. With such proof, the value of study in the discipline exceeds just the acquisition of communication abilities and knowledge.

Third, the members of the speech communication discipline must discern if there is a specific "way of knowing" about the discipline. How does the thinking of beginners differ from the thinking of someone more experienced in the field? A general answer to this question comes from a model proposed by Williams (1986). Williams reformulated the works of Kohlberg, Perry and Piaget to a three level view of a critical thinker. At the novice level (presocialized), the thinker in a particular discipline does not understand its

complexities nor can he/she effectively use the conventions of the discipline. At the intermediate level (socialized), the thinker is emersed in the discipline and only converses in the language of the discipline. He/she "sounds like an insider." At the advanced level (postsocialized), the thinker can appreciate similiarities and differences in other fields, and can explain ideas of the discipline to those outside of the discipline.

If differences such as those noted by Williams can be identified within the discipline, it may then be possible to design a model charactizing thinking in the discipline and note how it is different than and similiar to other disciplines. Such a model would also assist in defining the developmental sequence necessary to facilitate critical thinking in speech communication.

Future challenges for communication educators in responding to the critical thinking movement will take considerable time and effort. Cognitive and metacognitive aspects of communication must be identified. Transfer must be documented, and a "way of knowing" must be defined.

This review of literature has illustrated the complex dimensions of the critical thinking movement. Critical thinking can be defined, taught and evaluated in a number of ways. Various responses by communication educators to the movement need future thought and research. The importance of critical thinking in education is not likely to diminish, it is, therefore, essential that communication educators continue study and accomodation of critical thinking abilities in their classrooms.

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